

WHAT IS CLAIMED IS:

- 1                    1.        A magnesium ammonium phosphate cement preparation comprising:  
2                    a powder mixture having molar quantities of the components calcium (Ca),  
3 magnesium (Mg) and orthophosphate (P) in the mixture in the ranges  $1 < \text{Ca/P} < 1.5$  and  
4  $\text{Mg/P} < 0.5$ ; and  
5                    an ammonium salt.
- 1                    2.        The preparation according to claim 1, wherein the ammonium salt  
2 comprises an aqueous solution having a pH in the range from 7 to 12.
- 1                    3.        The preparation according to claim 1, wherein the ammonium salt is  
2 present in the powder mixture at molar quantity of ammonium ( $\text{NH}_4$ ) less than 0.5.
- 1                    4.        The preparation according to claim 1, wherein the powder mixture  
2 comprises  $\alpha/\beta$ -tertiary calcium phosphate ( $\alpha/\beta$ -TCP).
- 1                    5.        The preparation according to claim 4, wherein the powder mixture  
2 further comprises  $\text{MgHPO}_4 \cdot 3 \text{H}_2\text{O}$ .
- 1                    6.        The preparation according to claim 5, wherein the powder mixture  
2 further comprises  $\text{Mg}_3(\text{PO}_4)_2$ .
- 1                    7.        The preparation according to claim 1, wherein the powder mixture  
2 comprises  $(\text{NH}_4)_2\text{SO}_4$ .
- 1                    8.        The preparation according to claim 1, wherein the powder mixture  
2 further comprises  $\text{KH}_2\text{PO}_4$ .
- 1                    9.        The preparation according to claim 1, wherein the powder mixture  
2 further comprises  $\text{Na}_2\text{HPO}_4$ .
- 1                    10.      The preparation according to claim 1, further comprising  $\text{SrCO}_3$ .
- 1                    11.      The preparation according to claim 10, wherein the  $\text{SrCO}_3$  is present in  
2 the range of 0.01 to 10 wt. % based on the total weight of the preparation.
- 1                    12.      The preparation according to claim 10, wherein the  $\text{SrCO}_3$  is present in  
2 the range of 0.1 to 5 wt.% based on the total weight of the preparation.

- 1                    13.     The preparation according to claim 1, further comprising ZnO.
- 1                    14.     The preparation according to claim 1, wherein the powder mixture  
2 further comprises  $\text{Ca}_2\text{NaK}(\text{PO}_4)_2$  and/or  $\text{CaKPO}_4$ .
- 1                    15.     The preparation according to claim 1, further comprising a fluoride.
- 1                    16.     The preparation according to claim 1, further comprising a  
2 pharmaceutical and/or a bioactive active ingredient.
- 1                    17.     The preparation according to claim 16, wherein the pharmaceutical  
2 and/or a bioactive active ingredient comprises a therapeutic dose of a component selected  
3 from the group consisting of antibiotics, cytostatic agents, analgesics, disinfectants, growth  
4 factors, proteins or elastin inhibitors.
- 1                    18.     A magnesium ammonium phosphate cement preparation comprising:  
2 a powder mixture comprising  $\alpha$ -TCP,  $\beta$ -TCP,  $\text{MgHPO}_4 \cdot 3 \text{H}_2\text{O}$ ,  $\text{KH}_2\text{PO}_4$  and  
3  $\text{Na}_2\text{HPO}_4$ ; and  
4 an ammonium salt.
- 1                    19.     The preparation according to claim 18, wherein the powder mixture  
2 further comprises  $\text{SrCO}_3$ .
- 1                    20.     The preparation according to claim 19, wherein the  $\text{SrCO}_3$  is present in  
2 a quantity of 0.01 to 10 wt.% based on the total weight of the preparation.
- 1                    21.     The preparation according to claim 18, further comprising ZnO.
- 1                    22.     The preparation according to claim 18, wherein the powder mixture  
2 further comprises  $\text{Ca}_2\text{NaK}(\text{PO}_4)_2$  and/or  $\text{CaKPO}_4$ .
- 1                    23.     The preparation according to claim 18, further comprising a fluoride.
- 1                    24.     The preparation according to claim 18, further comprising a  
2 pharmaceutical and/or a bioactive active ingredient.
- 1                    25.     The preparation according to claim 24, wherein the pharmaceutical  
2 and/or a bioactive active ingredient comprises a therapeutic dose of a component selected

3 from the group consisting of antibiotics, cytostatic agents, analgesics, disinfectants, growth  
4 factors, proteins or elastin inhibitors.

1 26. A magnesium ammonium phosphate cement preparation comprising:  
2 a powder mixture comprising  $\alpha$ -TCP,  $\beta$ -TCP,  $(\text{NH}_4)_2\text{SO}_4$ ,  $\text{KH}_2\text{PO}_4$  and  
3  $\text{Na}_2\text{HPO}_4$ ; and  
4 a magnesium salt.

1 27. The preparation according to claim 26, wherein the magnesium salt is  
2  $\text{MgHPO}_4 \cdot 3 \text{H}_2\text{O}$ .

1 28. The preparation according to claim 26, wherein the powder mixture  
2 further comprises  $\text{SrCO}_3$ .

1 29. The preparation according to claim 28, wherein the  $\text{SrCO}_3$  is present at  
2 0.01 to 10 wt.% based on the total weight of the preparation.

1 30. The preparation according to claims 26, further comprising  $\text{ZnO}$ .

1 31. The preparation according to claims 26, wherein the powder mixture  
2 further comprises  $\text{Ca}_2\text{NaK}(\text{PO}_4)_2$  and/or  $\text{CaKPO}_4$ .

1 32. The preparation according to claim 26, further comprising a fluoride.

1 33. The preparation according to claim 26, further comprising a  
2 pharmaceutical and/or a bioactive active ingredient.

1 34. The preparation according to claim 33, wherein the pharmaceutical  
2 and/or a bioactive active ingredient comprises a therapeutic dose of a component selected  
3 from the group consisting of antibiotics, cytostatic agents, analgesics, disinfectants, growth  
4 factors, proteins or elastin inhibitors.

1 35. A magnesium ammonium phosphate cement preparation comprising:  
2 a powder mixture comprising  $\alpha$ -TCP,  $\beta$ -TCP, primary or secondary  
3 ammonium phosphate,  $\text{KH}_2\text{PO}_4$  and  $\text{Na}_2\text{HPO}_4$ ; and  
4 a magnesium salt.

- 1                    36.     The preparation according to claim 35, wherein the magnesium salt is  
2      $\text{MgHPO}_4 \cdot 3 \text{H}_2\text{O}$ .
- 1                    37.     The preparation according to claim 35, wherein the powder mixture  
2     further comprises  $\text{SrCO}_3$ .
- 1                    38.     The preparation according to claim 37, wherein the  $\text{SrCO}_3$  is present at  
2     0.01 to 10 wt.% based on the total weight of the preparation.
- 1                    39.     The preparation according to claim 35, further comprising  $\text{ZnO}$ .
- 1                    40.     The preparation according to claim 35, wherein the powder mixture  
2     further comprises  $\text{Ca}_2\text{NaK}(\text{PO}_4)_2$  and/or  $\text{CaKPO}_4$ .
- 1                    41.     The preparation according to claim 35, further comprising a fluoride.
- 1                    42.     The preparation according to claim 35, further comprising a  
2     pharmaceutical and/or a bioactive active ingredient.
- 1                    43.     The preparation according to claim 42, wherein the pharmaceutical  
2     and/or a bioactive active ingredient comprises a therapeutic dose of a component selected  
3     from the group consisting of antibiotics, cytostatic agents, analgesics, disinfectants, growth  
4     factors, proteins or elastin inhibitors.